ESO-1935

U.S. PRODUCTION AND CONSUMPTION OF BEEF, PORK, AND POULTRY, 1950-2000

Thomas T. Stout

Department of Agricultural Economics and Rural Sociology
The Ohio State University
Columbus

April, 1992

U.S. PRODUCTION AND CONSUMPTION OF BEEF, PORK, AND POULTRY, 1950 - 2000 *

Thomas T. Stout **

INTRODUCTION

U.S. meat production estimates are based on primary data gathered and disseminated by the U.S. Department of Agriculture (USDA). Most U.S. meat consumption estimates are calculated from these same production data rather than from separate primary data series. Two types of information are included in this monograph: (1) Red meat and poultry production data and the consumption estimates that can be calculated from that information, and (2) separate estimates of product prices, consumer income, and purchasing power that are available from other sources. Some of the tables and figures that follow are designed for projection on a screen.

MEAT PRODUCTION AND DISAPPEARANCE

Tables 1-3 provide the basic information about production and consumption for beef, pork, and poultry. These are hard numbers, reported by packers, recorded by trade groups and government, and distributed as public information. Consumption estimates begin by determining what is available to consume, starting with annual pounds of production (carcass weight). To this is added carcass-equivalent weights of beginning inventory and imports;

---

* This information set is one of a series used as teaching aids in AEC 522, Economics of the Livestock-Meat Industry, a course in the College of Agriculture at The Ohio State University. This set was first presented in a seminar in the Department of Animal Science on April 7, 1992. Single copies may be obtained by requesting ESO 1935, Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus 43210.

** Professor, Department of Agricultural Economics and Rural Sociology. The author is grateful to Professors Wen Chern, Joe Havlicek, Jr., Norman Rask, Fred Stephens, and William Tyznik for comments and suggestions concerning sources and interpretations, to Neal Blue for regression packages, to Maurice Klein for data retrieval, and to Janice DiCarolis and Karlene Robison for graphics and typing.

exports and year-end inventories are subtracted. What remains is a carcass-equivalent weight called "meat disappearance" which provides the first basis

Production

+ beginning inventory

+ imports

- exports

- ending inventory

= Disappearance

for estimating consumption. All this information appears in Tables 1-3. Table footnotes provide useful details. Beginning and ending inventories tend to cancel each other. So the relationship between production and disappearance depends mostly upon whether the United States is a net importer or a net exporter. The U.S. imports more beef and pork than it exports, so meat disappearance exceeds meat production by the net import amount, as in Figure 1. There are no poultry imports but there are exports, so poultry disappearance is less than poultry production (see Table 3).

MEAT DISAPPEARANCE AND CONSUMPTION

The first estimate of consumption is derived simply by dividing disappearance by July 1 (mid-year) population (See Tables 1-3). For many years this was widely cited as the only consumption estimate (barring independent estimating attempts based on primary consumer data and published at irregular intervals, usually as one-of-a-kind studies). But carcass-equivalent weight numbers were not as precise as consumption estimates could be. Consequently, conversion factors to account for trim loss were developed to convert carcass weight to retail-equivalent weights. More recently, factors have been developed to convert carcass weights to boneless trimmed equivalent weights.

Table 1: Beef - Supply and Utilization, United States, 1960 - 1992[1/]

Year	Supply: Production	Supply: Imports 2/	Supply: Beginning Stocks 3/	Supply: Total Supply	Utilization: Exports 2/ & 4/	Utilization: Shipments to U.S. Territories 2/	Utilization: Ending Stocks 3/	Beef Disappearance: Total	Beef Disappearance: Per Capita 5/	Factor for Converting Carcass Weight to: Retail Weight 6/	Factor for Converting Carcass Weight to: Boneless Trimmed Weight 6/
	Million Pounds								Pounds		
1960	14,728	760	202	15,690	55	[4/]	170	15,465	85.6	0.750	0.698
1965	18,699	923	315	19,937	91	[4/]	260	19,586	100.8	0.750	0.698
1970	21,685	1,792	353	23,830	101	[4/]	338	23,391	114.1	0.740	0.698
1975	23,975	1,758	402	26,135	110	[4/]	350	25,675	118.9	0.740	0.698
1980	21,643	2,064	459	24,166	173	47	432	23,513	103.3	0.740	0.698
1985	23,728	2,071	472	26,271	325	51	420	25,476	106.8	0.740	0.698
1986	24,371	2,129	420	26,919	516	52	412	25,940	107.8	0.730	0.690
1987	23,566	2,269	412	26,247	600	56	386	25,205	103.8	0.710	0.670
1988	23,589	2,379	386	26,353	680	64	422	25,188	102.8	0.705	0.667
1989	23,087	2,278	422	25,687	1,023	61	335	24,269	98.1	0.705	0.667
1990	22,743	2,356	335	25,434	1,006	61	397	23,969	95.9	0.705	0.667
1991P	22,910	2,406	397	25,714	1,188	60[7/]	419	24,047[7/]	95.2[7/]	0.704[7]	0.664[7]
1992P	23,159	2,310	419	25,888	1,275	60[7/]	325	24,228[7/]	95.3[7/]	0.704[7]	0.664[7]

P = Preliminary

1/ Carcass-weight basis except as noted in footnote 3. Edible offals are not part of the carcass and therefore are not included. 2/ Beginning 1989, trade data include veal. 3/ Cold-storage holdings in public and private warehouses and packing plants whose food products are normally stored for 30 days or more. Excluded are stocks in space maintained by wholesalers, jobbers, distributors, chain stores, locker plants containing individual lockers, meat packer branch houses, frozen food processors whose entire inventories are turned over more than once a month, and the Armed Forces. Stocks data are reported on a product-weight basis before 1979 and on a carcass-weight basis thereafter. 4/ Shipments to U.S. territories before 1976 are included under exports. 5/ Uses U.S. total population, July 1, which does not include U.S. territories. 6/ Beef conversion factors are from Nelson et al., AER 623, ERS, USDA, 1989. 7/ Estimate by Stout, after deducting estimated shipments to territories.

Source: Derived from sources cited in Footnote 6 and from (for 1960-65) "Livestock and Meat Statistics, 1984-88," SR 784, ERS, USDA, September, 1989; (for 1970-89) "Food Consumption, Prices, and Expenditures, 1968-89," SR 825, ERS, USDA, May, 1991, and (for 1990-92) "Livestock and Poultry Situation and Outlook," LPS-52, ERS, USDA, February, 1992.

Table 2: Pork - Supply and Utilization, United States, 1960 - 1992[1/]

Year	Supply: Production	Supply: Imports	Supply: Beginning Stocks 2/	Supply: Total Supply	Utilization: Exports 3/	Utilization: Shipments to U.S. Territories	Utilization: Ending Stocks 2/	Utilization: Pork Disappearance: Total	Utilization: Pork Disappearance: Per Capita 4/	Factor for Converting Carcass Weight to: Retail Weight 5/	Factor for Converting Carcass Weight to: Boneless Trimmed Weight 5/
	Million Pounds								Pounds		
1960	13,905	222	264	14,391	164	3/	170	14,057	77.8	0.755	0.625
1965	12,782	382	284	13,448	149	3/	152	13,147	67.7	0.760	0.643
1970	14,699	491	211	15,401	194	3/	336	14,871	72.5	0.765	0.665
1975	11,779	439	307	12,525	317	3/	249	11,959	55.4	0.770	0.690
1980	16,617	550	355	17,521	252	154	431	16,684	73.3	0.775	0.711
1985	14,807	1,128	348	16,283	128	132	289	15,733	66.0	0.780	0.723
1986	14,063	1,122	289	15,474	86	132	253	15,003	62.3	0.779	0.725
1987	14,373	1,195	253	15,821	109	127	360	15,225	62.7	0.778	0.727
1988	15,684	1,137	360	17,181	195	126	437	16,423	67.0	0.777	0.728
1989	15,813	896	437	17,146	262	143	313	16,428	66.4	0.776	0.729
1990	15,354	898	313	16,565	238	143	296	15,887	63.6	0.776	0.729
1991P	16,002	775	296	17,073	283	140[6/]	388	16,262[6/]	64.4[6/]	0.777[6]	0.729[6]
1992P	16,979	830	388	18,197	280	140[6/]	375	17,402[6/]	68.4[6/]	0.777[6]	0.729[6]

P = Preliminary

1/ Carcass-weight basis except as noted in footnote 2. Edible offals are not part of the carcass and therefore are not included. 2/ Cold-storage holdings in public and private warehouses and packing plants whose food products are normally stored for 30 days or more. Excluded are stocks in space maintained by wholesalers, jobbers, distributors, chain stores, locker plants containing individual lockers, meat packer branch houses, frozen food processors whose entire inventories are turned over more than once a month, and the Armed Forces. Stocks data are reported on a product-weight basis before 1979 and on a carcass-weight basis thereafter. 3/ Shipments to U.S. territories before 1976 are included under exports. 4/ Uses U.S. total population, July 1, which does not include U.S. territories. 5/ Pork conversion factors are from Duewar et al., LPS-45, ERS, USDA, January, 1991. 6/ Estimate by Stout, after deducting estimated shipments to territories.

Source: Derived from sources cited in Footnote 5 and from (for 1960-65) "Livestock and Meat Statistics, 1984-88," SR 784, ERS, USDA, September, 1989; (for 1970-89) "Food Consumption, Prices, and Expenditures, 1968-89," SR 825, ERS, USDA, May, 1991, and (for 1990-92) "Livestock and Poultry Situation and Outlook," LPS-52, ERS, USDA, February, 1992.

Table 3: Poultry - Supply and Utilization, United States, 1960 - 1992[1/]

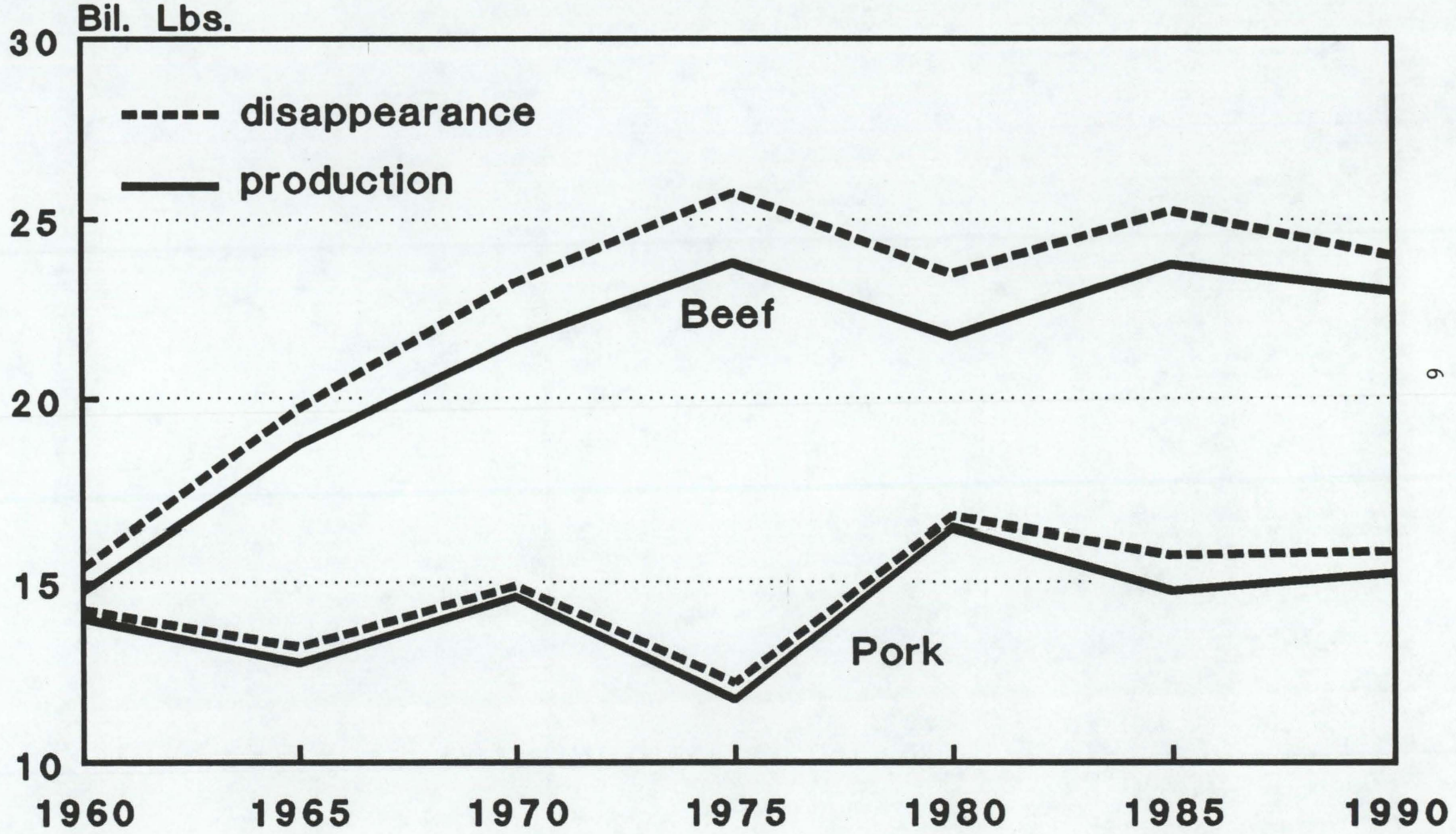
Year	Supply			Utilization					Factor for Converting Ready-to-Cook to boneless Weight 6/
	Production 2/	Beginning Stocks 3/	Total Supply 4/	Exports 4/	Shipments to U.S. Territories	Ending Stocks	Poultry Disappearance Total	Poultry Disappearance Per Capita 5/	
	Million Pounds							Pounds	
1960	6,310	310	6,620	161	17	290	6,152	34.0	.710
1965	8,132	346	8,478	173	54	308	7,943	40.9	.707
1970	10,194	302	10,496	132	94	382	9,888	48.2	.707
1975	10,626	450	11,076	202	123	309	10,442	48.4	.707
1980	14,541	383	14,924	695	167	334	13,728	60.3	.707
1985	17,340	264	17,604	465	151	321	16,667	69.8	.708
1986	18,230	321	18,551	609	156	365	17,421	72.4	.709
1987	20,068	365	20,433	800	157	479	18,997	78.3	.709
1988	20,779	479	21,258	842	164	442	19,810	80.8	.710
1989	22,280	442	22,722	879	191	464	21,188	85.6	.710
1990	23,982	463	24,445	1,222	7/	557	22,666	90.7	.710
1991	25,253	557	25,810	1,392	7/	575	23,843	94.4	.710
1992P	26,251	575	26,826	1,306	7/	515	25,005	98.3	.710

P = Preliminary

1/ Turkey and all chicken. Ready-to-cook weight. 2/ Includes the quantity sold from and consumed on farms where produced. 3/ Stocks data in terms of product weight as reported. 4/ There are no imports. 5/ Uses U.S. total population, July 1, which does not include the U.S. territories. 6/ Estimate by Stout based on conversion factors for chicken and turkey found in Agriculture Handbook No. 8-5, Composition of Foods: Poultry products... Raw, Processed, Prepared, Science and Education Administration, USDA, revised August 1979. 7/ Included with exports.

Source: Derived from sources cited in Footnote 6 and from (for 1960-65) "Livestock and Meat Statistics, 1984-88," SR 784, ERS, USDA, September, 1989; (for 1970-89) "Food Consumption, Prices, and Expenditures, 1968-89," SR 825, ERS, USDA, May, 1991, and (for 1990-92) "Livestock and Poultry Situation and Outlook," LPS-52, ERS, USDA, February, 1992.

FIGURE 1: BEEF AND PORK PRODUCTION AND DISAPPEARANCE



Source: Tables 1 and 2.

These conversion factors are included in Tables 1-3 (see Duewar, Nelson, Putnam).

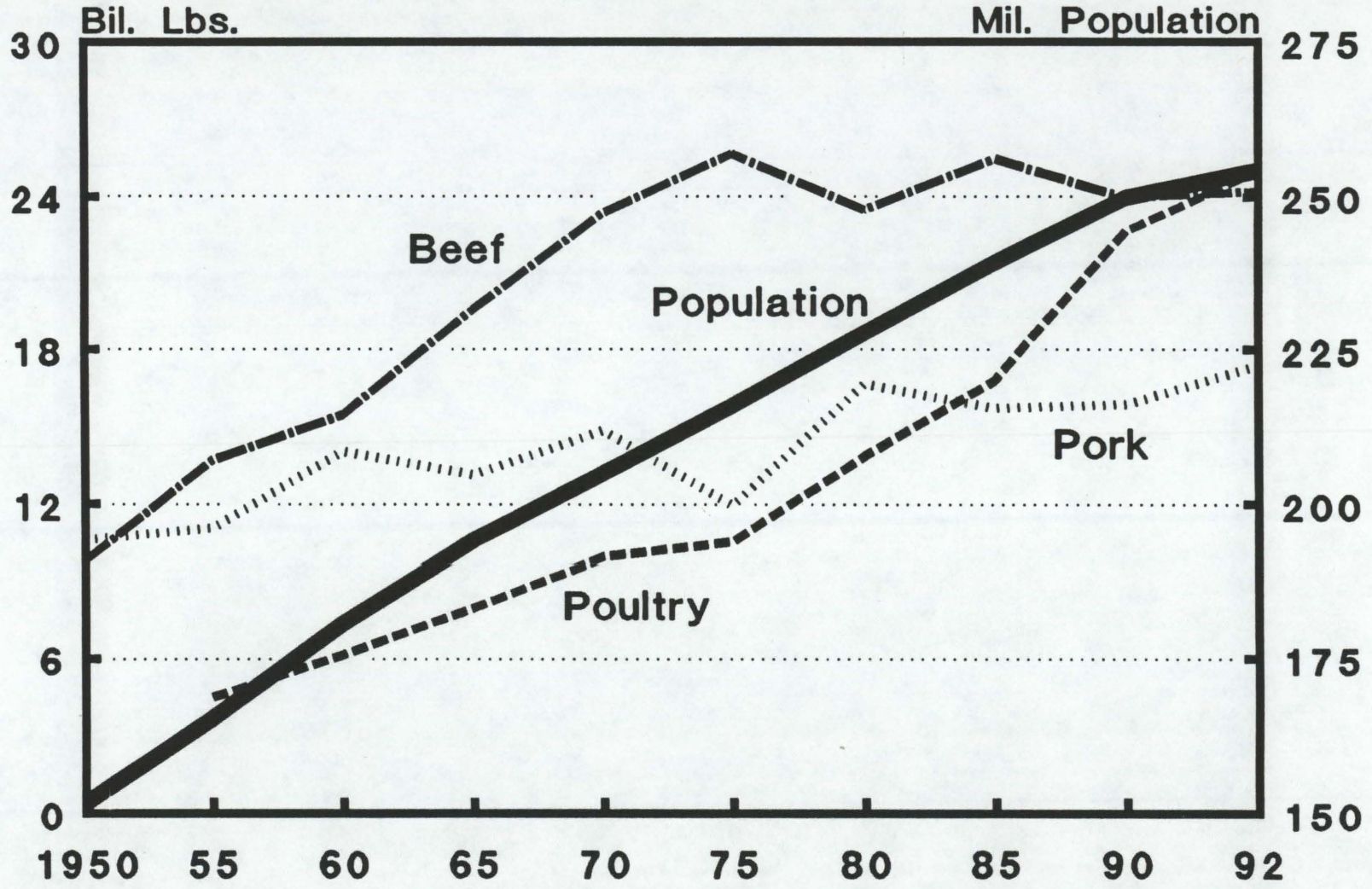
A graphic presentation of U.S. relationships over time between aggregate meat disappearance (carcass weight) and population (mid-year) appears in Figure 2. Per capita consumption (boneless trimmed weight) appears in Table 4. Table 4, therefore, represents the estimated per capita distribution (boneless trimmed weight) of meat disappearance (carcass weight) in the United States. Useful details are found in table footnotes.

Figure 2 and Table 4 provide a record of population and industry growth in the second half of the 20th Century. During this period, the poultry and cattle feeding industries were industrialized; their growth and output rates at times exceeding the rate of population increase. Pork disappearance (carcass weight) did not match population growth (Figure 2), but genetic progress, evidenced by a steady increase in conversion factors (Table 2), allowed per capita consumption (boneless weight) to remain constant (Table 4). Those who anticipate an industrialization of swine production paralleling that of fed beef and poultry expect increases in pork production and disappearance to accompany that transformation.

PRODUCTION CYCLES

Given the modest effect of net foreign trade, and the consequent small difference between production and disappearance of beef, pork, or poultry, the old adage remains worth comment that "we consume what we produce." Hence, expectations about future consumption are likely to depend in the short run more on future production than on any other single consideration. Moreover, the lower the reproductive rate and/or the longer the gestation period the farther into the future production and consumption levels will depend upon

FIGURE 2: U.S. POPULATION AND MEAT DISAPPEARANCE



Source: Tables 1-3 and population estimates from Current Population Reports, Census, USDC.

Table 4: Red Meat, Poultry, and Fish (boneless, trimmed equivalent): Per Capita Consumption, United States, 1960-1992 [1]

Year	Poultry [2]			Red Meat					Fish & Shellfish	Total [3] Red Meat Poultry & Fish
	Chicken	Turkey	Total[3]	Beef	Veal	Pork	Lamb	Total[3]		
1960[4]	19.2	5.0	24.2	59.7	4.2	48.6	3.1	115.6	10.3	150.1
1965[4]	22.8	5.9	28.7	70.4	3.6	43.5	2.4	119.9	10.8	159.4
1970	27.7	6.4	34.1	79.6	2.0	48.2	2.1	132.0	11.7	177.8
1975	27.5	6.7	34.2	83.0	2.8	38.2	1.3	125.3	12.1	171.7
1980	34.3	8.3	42.6	72.1	1.3	52.1	1.0	126.4	12.8	181.9
1985	39.9	9.6	49.4	74.6	1.5	47.7	1.1	124.9	14.4	188.7
1986	40.7	10.6	51.3	74.4	1.6	45.2	1.0	122.2	14.8	188.3
1987	43.4	12.1	55.5	69.5	1.3	45.6	1.0	117.4	15.3	188.2
1988	44.7	12.6	57.4	68.6	1.1	48.8	1.0	119.5	15.2	192.1
1989	47.3	13.5	60.8	65.4	1.0	48.4	1.1	115.9	15.8	192.6
1990	49.4	14.5	63.9	63.9	0.9	46.4	1.1	112.3	15.4	191.6
1991	51.7	15.0	66.7	63.3	0.8	46.9	1.1	112.1	15.4	194.2
1992P	54.5	15.2	69.7	63.4	0.7	49.9	1.1	115.1	NA	NA

P = Preliminary. NA = Not available.

[1] Excludes shipments to U.S. territories. Uses U.S. total population, July 1, which does not include the U.S. territories. Boneless equivalent for red meat derived from carcass weight; chicken and turkey derived from ready-to-cook weight, using conversion factors in SB 825. Boneless equivalent, or edible weight, for fish is calculated by the U.S. Department of Commerce. [2] Includes skin, neck meat, and giblets. [3] Total may not add due to rounding. [4] Estimated by Stout applying conversion factors cited in SB 825 to livestock and poultry data in SB 784.

Source: Derived from (for 1960-65) "Livestock and Meat Statistics, 1984-88," SR 784, ERS, USDA, September, 1989; (for 1970-89) "Food Consumption, Prices, and Expenditures, 1968-89," SR 825, ERS, USDA, May, 1991, and (for 1990-92) "Livestock and Poultry Situation and Outlook," LPS-52, ERS, USDA, February, 1992.

present stocks. Cattle and hog production are notable for their cyclical regularity, and although these cycles appear to be moderating, the present position of any cycle still is a persuasive indicator of what to expect next, both in terms of prices and of production (consumption).

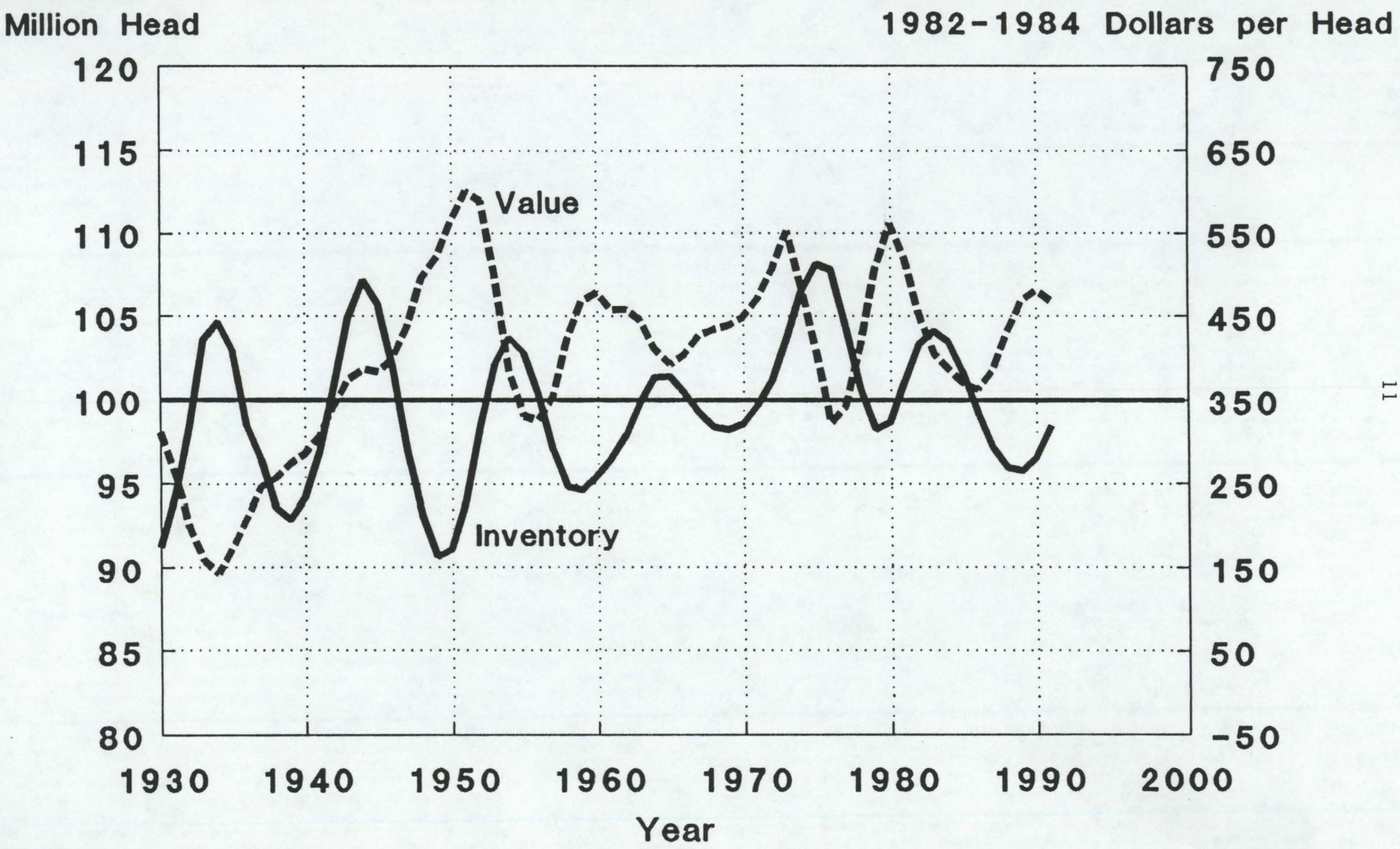
Figures 3 and 4 provide illustrations. In each of these, beginning annual livestock inventories have been presented as a three-year moving average expressed as a percentage of the (regressed) inventory trend. This eliminates trend distractions in order to emphasize cyclical variations. Similarly, prices have been deflated to remove inflationary trends.

On the basis of either of these figures, it is easy and not unreasonable to imagine increasing production as cattle and hog inventory cycles expand again. How far and how long will these cycles expand? Will they reach inventory levels that equal or exceed the levels of recent cycles? Here we are beginning to ask questions that recognize there is another side to the equation - the demand side. Is there enough money in the economy to fuel production increases that will equal or exceed population growth, and maintain or increase the per capita distribution of this production? The answer may vary, depending first upon production costs and, second upon consumer income.

PRODUCT PRICES AND COSTS

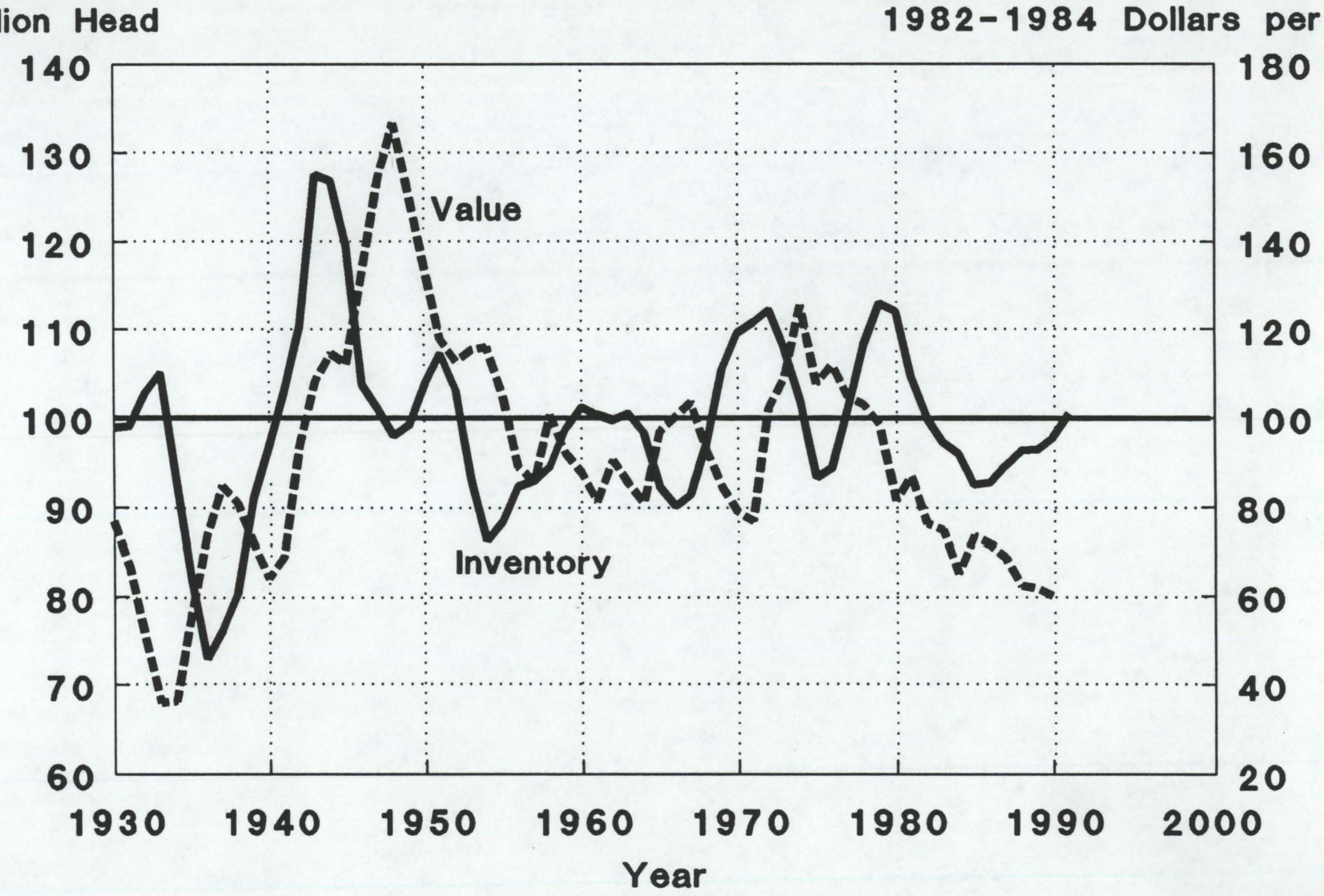
There are 35 years of current prices in Figure 5. They diverge with the passage of time. These prices are a consequence of a willingness to sell and a willingness to buy. Producers will not repeatedly offer to sell for ***less*** than the cost of production But in competitive industries like these, consumers are not obliged in the long run to pay ***more*** than the cost of production. So we may suppose that these prices do not stray too far from

FIGURE 3: CATTLE: THREE-YEAR MOVING AVERAGE OF INVENTORY AS VARIATION FROM REGRESSED TREND, AND THREE-YEAR MOVING AVERAGE OF CONSTANT DOLLAR VALUE PER HEAD OF INVENTORY, U.S., 1930-2000



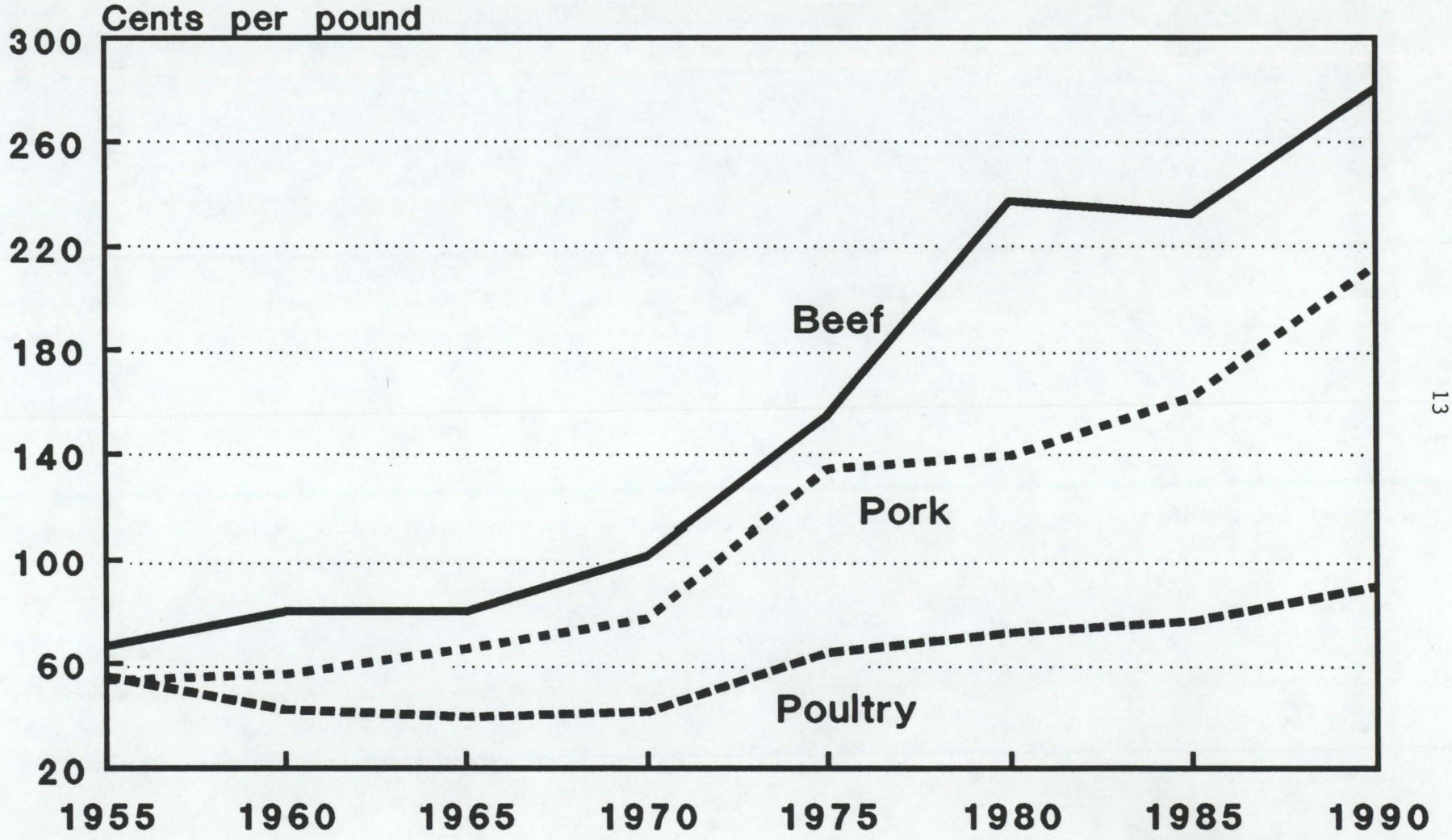
Source: USDA

FIGURE 4: HOGS: THREE-YEAR MOVING AVERAGE OF INVENTORY AS VARIATION FROM REGRESSED TREND, AND THREE-YEAR MOVING AVERAGE OF CONSTANT DOLLAR VALUE PER HEAD OF INVENTORY, U.S., 1930-2000



Source: USDA

FIGURE 5: RETAIL PRICES, 1955-1990



Source: USDA

reflecting long run average costs of delivering beef, pork, and poultry to consumers.

Figure 6 identifies feed requirements as a principal consideration in explaining cost differences. Based on estimated lifetime feed requirements (Ensminger, Moreng), and conversion factors from Tables 1-3, feed-equivalents per boneless pound are nearly six times greater for beef than for poultry. When additional feed requirement shares are assigned to offspring for brood stock support, differences shown here become larger, approaching thirty pounds for beef without appreciably affecting poultry (Rask). Hence, cost considerations suggest that it takes more money in the economy to fuel an expansion of beef production than of poultry production, and that if money (and purchasing power) is constrained, those limits might damage beef consumption more than poultry consumption.

There are other cost considerations (feed requirements alone will not explain why price (or cost) differences were wide in 1990 but narrow in 1955). These would include the scale economies and the increasing financial and managerial precision that accompanied the industrialization of fed beef and broiler production, compared to the objectives and norms that prevailed in the 1950s for family farm production. In 1950, Choice (fed) beef accounted for less than 35 percent of all graded beef; by 1985 for more than 90 percent (USDA). By 1990 broiler meat was an inexpensive and successful competitor for the least expensive (hamburger) beef; in 1950 chicken was comparatively expensive and uncommon as an urban consumer good, being still associated more with rural consumption patterns, where chickens were sold from farm flocks maintained primarily for egg production. Confinement production had not appeared in 1950; multiple farrowing and meat-type hogs were concepts rather

FIGURE 6: FEED RATIOS PER POUND OF MEAT

PRODUCT	LIFETIME FEED REQUIREMENT	FEED EQUIVALENT PER POUND OF MEAT		
		CARCASS	RETAIL	BONELESS
BEEF	9 : 1	15.0	21.3	22.6
PORK	4 : 1	5.6	7.1	7.6
BROILER	2 : 1	2.7		3.8

Source: Ensminger. Moreng. Stephens. Tables 1-3.

than accomplishments; hogs were valued for lard as well as meat, and for home consumption as well as for sale; over 15 percent of the population lived on farms in 1950 compared to less than 2 percent in 1990 (Census).

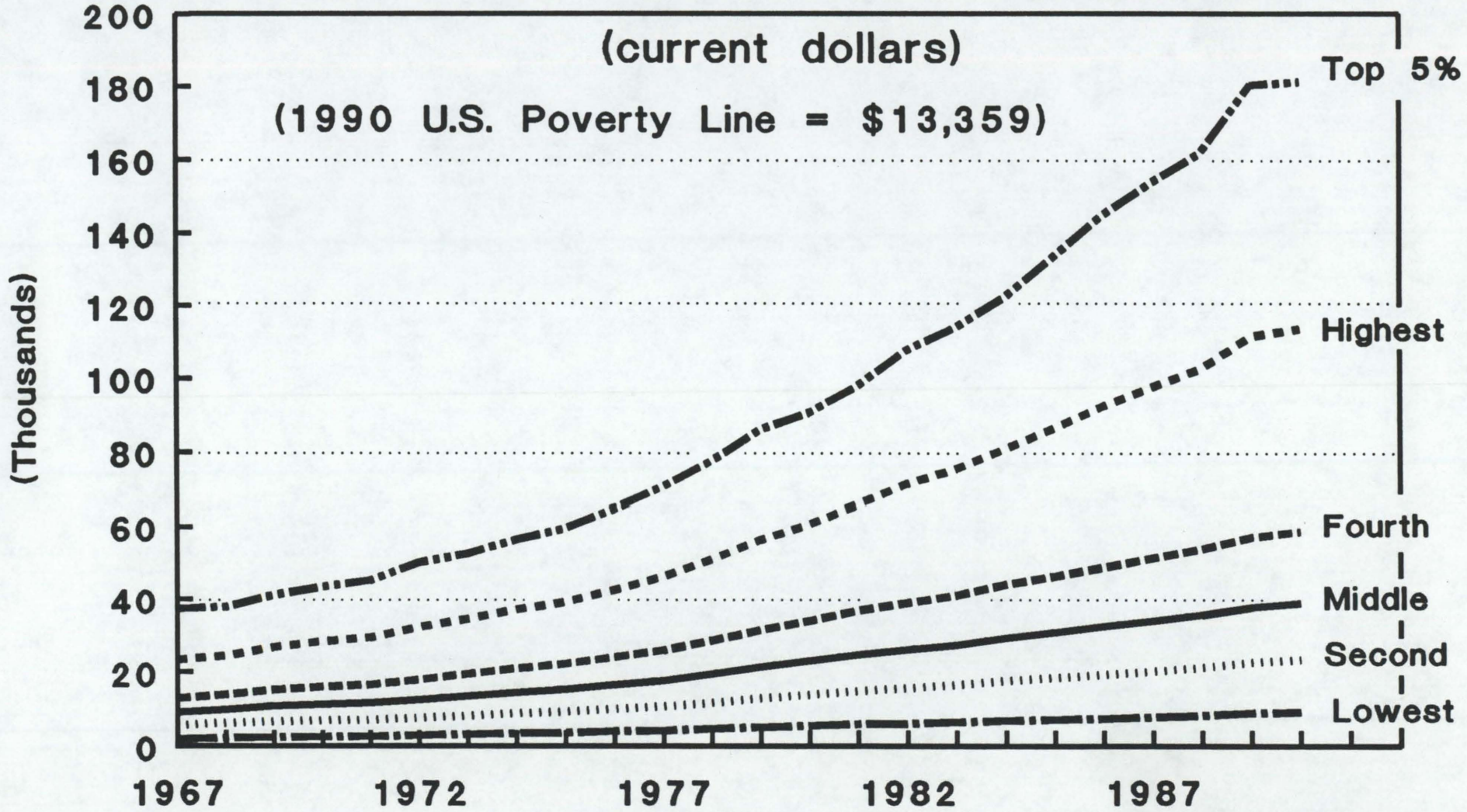
So there have been great increases in the productive efficiency (value of output divided by cost of input) of U.S. meat production. Not only has this occurred in animal production methods but in the animals themselves: Nutritive requirements are better understood, feed rations are better balanced, feed conversion ratios rise, reproductive efficiency improves, animals reach market weights at younger ages.

The marketing system also has evolved and improved: Storage and transportation offer products from distant locations at all seasons of the year; products have evolved that are more storable and transportable, and the final product is more thoroughly processed to incorporate services representing valued conveniences to the final consumer.

CONSUMER INCOME AND EXPENDITURES

Similar improvements in efficiency and increases in output occurred throughout the U.S. economy. Hence, incomes rose among the wage-earners who populate U.S. households, and who are the consumers whose food expenditures fund the entire production and marketing process. As incomes rise, there is a steady decline in the percentage of disposable income that U.S. households spend for food (Figure 7 and Table 5). This reflects a rising standard of living. Over time, householders have improved the quality of their diets and bought more services associated with foods consumed at home and away (and spent more money to get it), yet they have spent a lower share of their income to accomplish this.

FIGURE 7: DISTRIBUTION OF HOUSEHOLD INCOME AMONG POPULATION QUINTILES



Source: Current Population Reports, Census, USDC

Table 5: Food Expenditures by Families and Individuals as a Share of Disposable Income, United States, Selected Years, 1950-1991.

(billions of current dollars)

Year	Disposable Personal Income	Expenditures for Food					
		At home[1]		Away from home[2]		Total[3]	
		Amount	Percent	Amount	Percent	Amount	Pct.
1950	207.7	-	-	-	-	51.5	24.8
1955	274.4	-	-	-	-	62.8	22.9
1960	352.0	56.2	16.0	14.2	4.0	70.5	20.0
1965	475.8	66.8	14.0	19.0	4.0	85.8	18.0
1970	722.0	74.2	10.3	26.4	3.7	100.6	13.9
1975	1,150.9	115.1	10.0	45.9	4.0	161.0	14.0
1980	1,952.9	178.5	9.1	85.4	4.4	263.9	13.5
1985	1,943.0	228.4	7.8	129.5	4.4	357.9	12.2
1990	4,058.8	297.3	7.3	177.3	4.4	474.6	11.7
1991	4,217.9	304.6	7.2	182.9	4.3	487.5	11.6

[1] Food purchases from grocery stores and other retail outlets, including purchases with food stamps and food produced and consumed on farms because the value of these foods is included in personal income. Excludes government-donated foods. [2] Purchases of meals and snacks by families and individuals, and food furnished employees since it is included in personal income. Excludes food paid for by government and business, such as donated foods to schools, meals in prisons and other institutions, and expense-account meals. [3] Total may not add due to rounding.

Source: Putnam, J.J. and E.J. Allshouse, "Food Consumption, Prices and Expenditures, 1970-1990," SB840, ERS, USDA, August, 1992. For 1960 and 1965, SB694, ERS, USDA, November, 1982. For 1950 and 1955, Unpublished data by Alden Manchester, ERS, USDA, August, 1990, and disposable income from SB364, ERS, USDA, June, 1965. 1960-1992 revisions appear in AIB669, ERS, USDA, April, 1993.

But income is not evenly distributed among U.S. households (Figure 7 and Table 6), and consumption patterns vary with income. Low income families spend such a large share of their income for food (Table 6) that little is left for more than necessities like clothing and shelter. For what seems to them a modest expense, high income households can indulge their preferences for expensive foods while low income households spend carefully for even the cheapest foods.

Consequently, low income families focus on basics like cereals, potatoes or low-priced meats or canned goods, while high-income families eat as they please. Given the prices that appear in Figure 5, one would expect that household income would be an important consideration in estimating consumption patterns for beef, pork, and poultry. Figure 8, for example, illustrates that as income (constant dollars) has risen, beef disappearance has, until recently, risen also. But pork disappearance has been more closely related to population growth. Apparently, households increase their consumption of beef as their incomes rise; while lower pork or poultry prices tend to make them more attractive to value-shoppers with less money to spend.

A matter of great interest to beef producers has been the divergence of beef disappearance from the rising income trend, beginning about 1975 (Figure 8) Explanations are conjectural but include health consciousness and cholesterol concerns, the increased availability of low-cost poultry, and the observation by some that 1975 disappearance was an abnormally high base from which to compare, given that it was, at least in part, a consequence of short-term attempts at price controls in the Nixon Administration. But many observers feel also that high energy prices and interest rates were catalysts that forced many households to experiment with new consumption patterns (not so

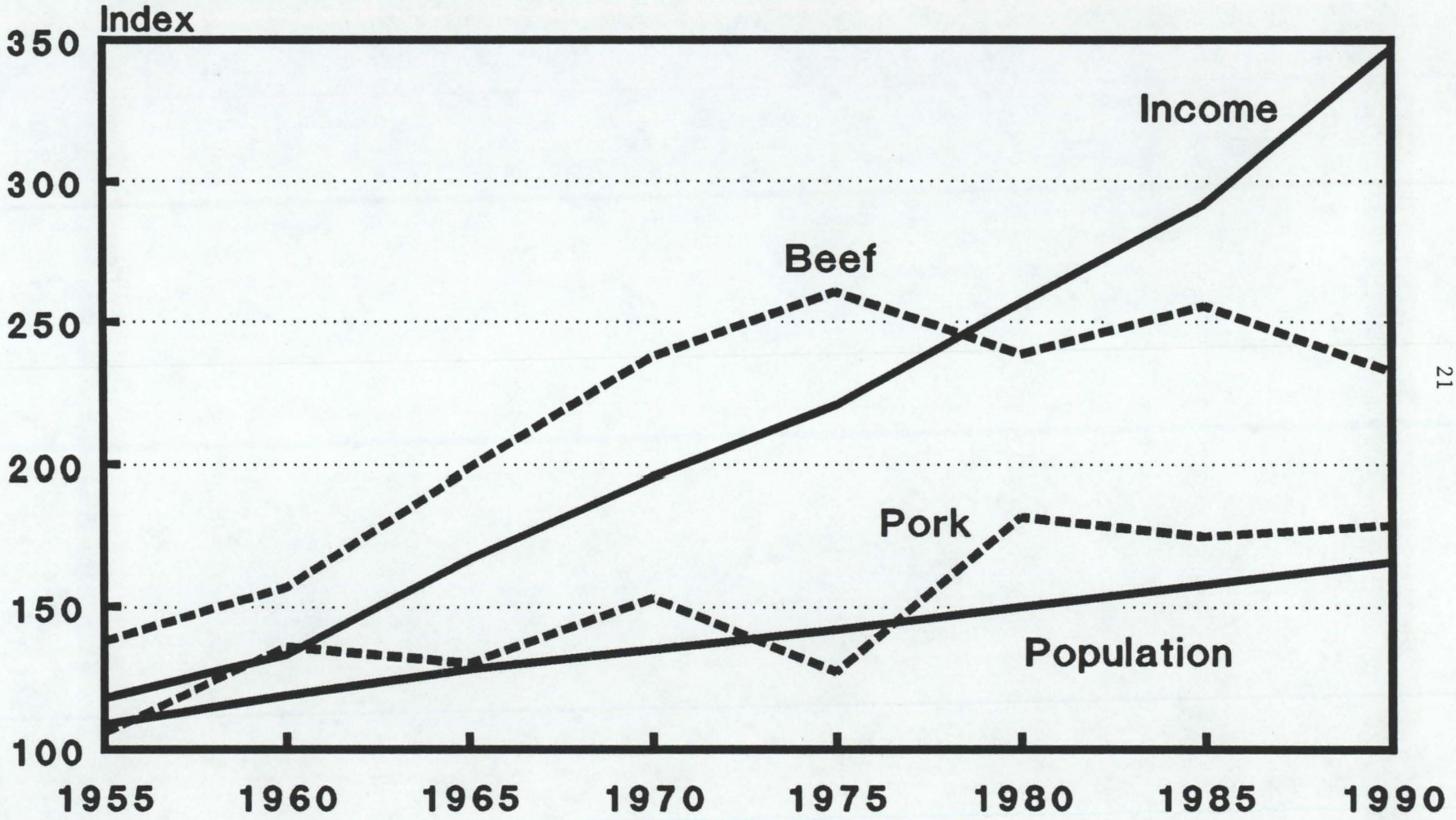
Table 6: Household Data: Relationship Between Income and Expenditures for Food, 1989

Income Class	Total Population	Total Reported Income	Total Food Expenditures	Food as Percent of Income
Dollars	%	%	%	%
Under 10,000	20.33	3.75	10.80	38.39
10,000-20,000	22.64	10.60	17.01	21.42
20,000-30,000	16.56	12.99	15.65	16.07
30,000-40,000	13.72	15.11	15.78	13.93
40,000-50,000	9.10	12.96	11.36	11.70
Over 50,000	17.64	44.60	29.40	8.80

Source: 1989 Consumer Expenditure Survey, Bureau of Labor Statistics, U.S. Department of Labor

FIGURE 8: INDEX OF POPULATION, DISPOSABLE INCOME AND MEAT DISAPPEARANCE

(Constant dollars, boneless weights, 1950=100)



Source: Tables 1-2, USDA, USDC.

much because they wanted to as because they had to) in struggling to make ends meet with unexpectedly constrained household budgets (Figure 9).

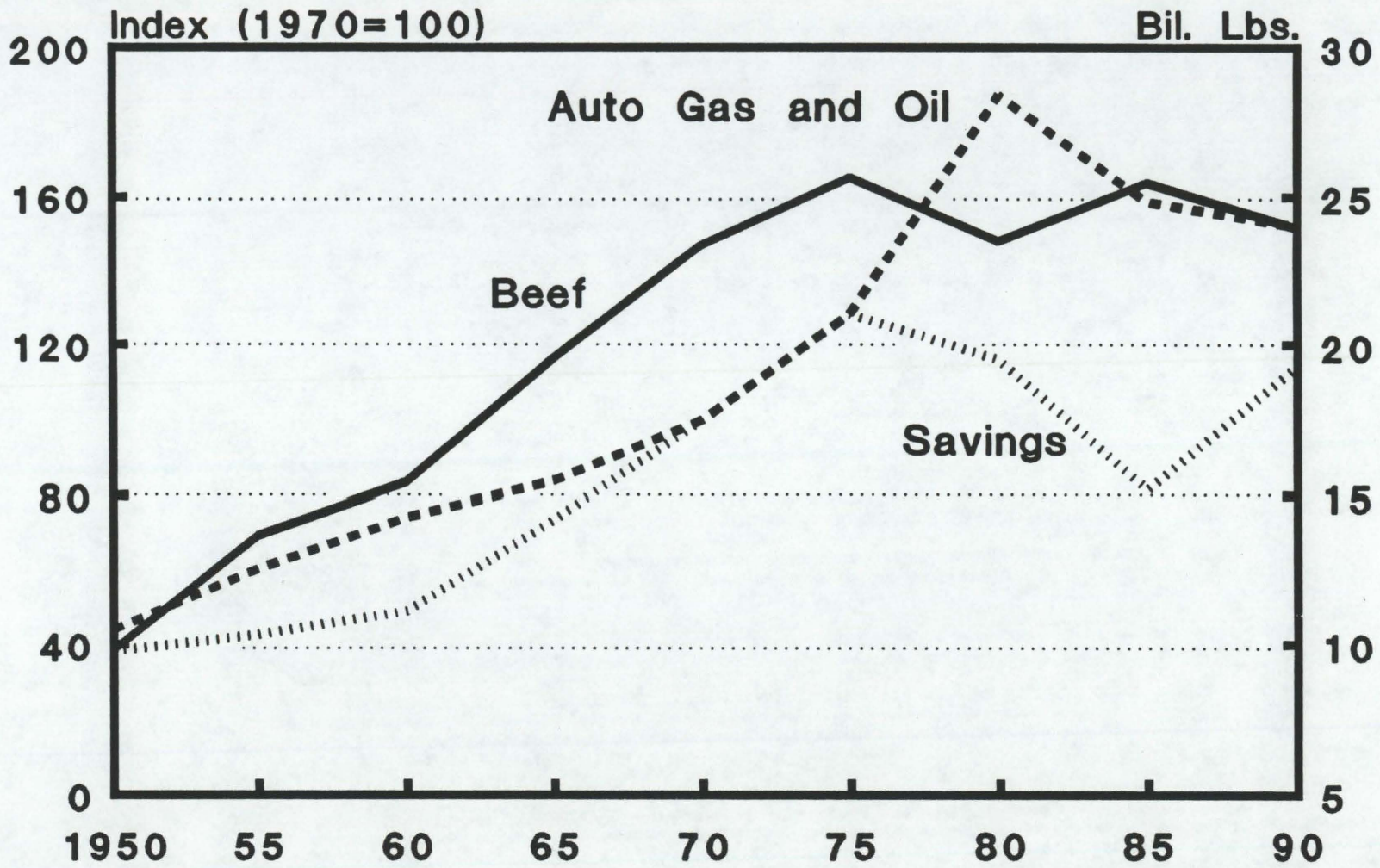
Hence purchasing power, i.e., not just income but the buying capacity of that income (and its distribution through the population) becomes an important element in explaining differences in consumption patterns. Figure 10 suggests that changes in purchasing power have not been favorable for continued increases in beef consumption.

Figure 10 is an index of purchasing power among households by population quintiles. Here, income (Figure 7) has been deflated by consumer expenditures and then indexed by dividing each year by 1965. What appears in Figure 10 is a pattern of purchasing power for each population quintile relative to 1965.

Notice that in the 1950s, the bottom quintile was uniquely alone in its low-purchasing power predicament. In the 1980s it was the rising purchasing power of the top quintile that was alone, and most of its growth was in the top 5 percent (Figure 7). From 1955 to 1970, purchasing power was stable or increasing in all groups. But after 1975-1980, quintiles 2, 3, and 4 suffered a deterioration in purchasing power that was a new experience for them, and the lowest quintile was returning to the low purchasing power status of a generation earlier. In terms of buying capacity, the fourth quintile of the U.S. population was by 1990 worse off than at any time since 1960, and the second and third quintiles (40 percent of the population) had less purchasing power than at any time in the second half of the century.

Most families today, one would suppose, have for at least a decade been shopping the supermarkets with a cost consciousness that constrains old habits and leads to new preferences and permanently altered consumption patterns.

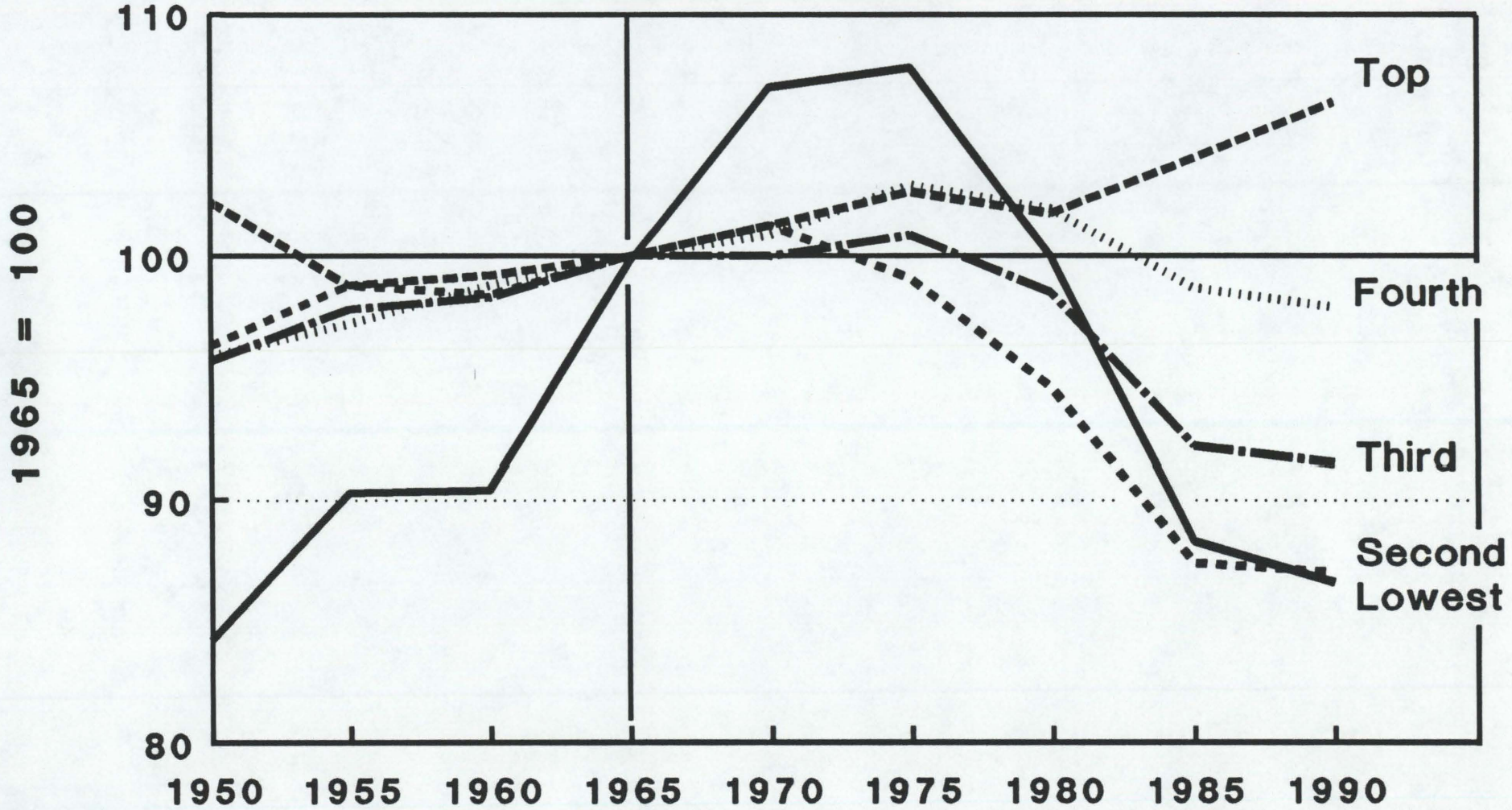
FIGURE 9: BEEF DISAPPEARANCE AND INDICES OF PERSONAL SAVINGS AND GAS AND OIL EXPENDITURES



Source: USDA and USDC

FIGURE 10: INDEX OF HOUSEHOLD PURCHASING POWER BY POPULATION QUINTILES

(constant dollars)



Source: USDC

ANTICIPATING THE FUTURE

In 1991 poultry surpassed beef as the meat with the highest per capita consumption in the U.S. (Table 4). Perhaps it is safe to regard this as a consequence of high productivity, low production costs and prices, and desirable product performance; an appealing combination to a consuming public confronting unaccustomed limits to purchasing power. For a few years yet, beef disappearance will continue to increase (Figure 3). But a resurgence of per capita beef consumption (relative to per capita poultry consumption) would require the return of a combination of circumstances (including amended pronouncements from the medical community) that may be unrealistic to expect. At the very least, a resurgence of purchasing power in a broad population base (Figure 10) would appear to be a prerequisite for the return of per capita beef consumption to former levels. Perhaps a growing export market in Pacific Rim countries will come to represent a significant contribution to the demand side of the equation for beef.

That pork production can be accomplished on an industrialized scale has already been demonstrated. The financial, managerial, and organizational know-how have been developed. The future of the industry is likely to bear little resemblance to its past. It is probably reasonable to suppose that a transition is eminent along lines of development that characterized the broiler industry a generation ago, and that the major contest for consumer acceptance will be between pork and poultry rather than between pork and beef.

REFERENCES

Duewar, L.A. et al., "Revisions in Conversion Factors for Pork Consumption Series," in "Livestock and Poultry Situation and Outlook Report," LPS-45, Economic Research Service, USDA, January, 1991.

Ensminger, M.E., Feeds and Nutrition, Ensminger Publishing Company, Clovis, California, 1990.

Gustafson, Ron et al., "Livestock and Meat Statistics, 1984-88," Statistical Bulletin 784, Economic Research Service, USDA, September, 1989.

Gustafson, Ron et al., "Livestock and Poultry Situation and Outlook Report," LPS-52 (T-43), Economics Research Service, USDA, February, 1992.

Moreng, R.E. and J.S. Avens, Poultry Science and Production, Reston Publishing Company, Reston, Virginia, 1985, Chapter 10.

Nelson, K.E. et al., "Reevaluation of the Beef Carcass-to-Retail Weight Conversion Factor," AER 623, Economic Research Service, USDA, 1989.

Putnam, J.J. and J.E. Allshouse, "Food Consumption, Prices, and Expenditures, 1968-89," Statistical Bulletin 825, Economic Research Service, USDA, May, 1991.

Rask, Norman, "Dynamics of Self-Sufficiency and Income Growth," included as Chapter 10 in Ruppel, F.J. and E.D. Kellogg (Eds.) National and Regional Self-Sufficiency Goals: Implications for International Agriculture, Lynne Reinner Publishers, Boulder & London, 1991.

_____, "Ohio Livestock Enterprise Budgets, 1991," Department of Agricultural Economics and Rural Sociology, Ohio Cooperative Extension Service, The Ohio State University, Columbus, 1991.